



SEQUENCE LISTING

```
<110> Jarrett, Paul
     Ellis, Deborah
     Morgan, James
<120> Pesticidal Agents
<130> 0380-P01838US0
<140> 09/242,843
<141> 1999-02-25
<150> PCT/GB97/02284
<151> 1997-08-27
<150> GB 9618083.1
<151> 1996-08-29
<160> 1
<170> FastSEQ for Windows Version 3.0
<210> 1
<211> 38258
<212> DNA
<213> Xenorhabdus
<220>
<221> misc_feature
<222> (0) ...(0)
<223> n at any position = a or c or g or t
<400> 1
```

V±0(// <u> </u>					
tccacaattg	ccggagaaaa	tcagtcggga	actgccggtg	attattcgtc	acttattaaa	60
cgaatttgcc	gaccagaata	aggctaaaaa	actgctacag	gcgcaacgcg	actcgaacga	120
agcgttaacg	gtaaagagtc	attcggatcc	gctgtatcgc	ttttgtggtt	atctggtgtc	180
		tgaagatggg				240
attgtacttg	tatcatgcct	atctctcttt	tatggaagcg	cacggctttg	aacgtccgtt	300
aacactgact	aagtttggtg	aatccatccc	caagattatg	ctggaatacc	ggaaggagta	360
tcgaaaagtg	cgaaccaaga	aaggctattc	ctataacgtg	gaattatcgg	aagaggccga	420
agaatggcta	ccgtcagtgc	ctgagtgtcg	agactttaaa	tcacctgtat	aaaactttga	480
		acacaactta				540
		aactatacat				600
aatgggtgaa	caggtgatac	agtcagtgaa	tatcatatta	attaccgtaa	acccagatgt	660
agcaaggctt	tcagggaatt	gtgcagaggg	tgcataactg	agagggtgaa	aaagattttc	720
aggggggctt	atggcaggta	aacaaaatca	gaagcaaata	ccgtgcacaa	tctggttttt	780
attttttggt	actacctcaa	attaaaatga	tgtaatcatc	tgattttatt	taagaataga	840
agttaatcac	aatttcattg	atggactttc	attcacactg	gtatagataa	ataattctgt	900
tatatcctgt	ttcattacgc	attcatcagg	agtgctgtta	caggagacaa	gaatgtcaca	960
catcatttac	ttgtcgttaa	agggcaagaa	gcagggttta	atttcagcgg	gttgttcaac	1020
gcctgaatca	attggaaatc	gctatcaaaa	aggacgtgaa	gatcaaatac	aggtattgag	1080
cctgaatcat	tcgatgagcc	gtgaccagaa	tgttaatcat	caacccgtca	gttttgtgaa	1140
acccattgat	aaatcctctc	ccctgtttgc	tggatgccag	ttttgtgcat	tacaggacaa	1200
		ttcttttatg				1260
atatttccta	taattatccg	gcattcaatc	aatgataatg	gtgcgatacc	ccatgaagtg	1320
gtgatgctcg	attataagtc	catttcatgc	aaccacatcg	ccgcaggact	tcgggctaca	1380
gcatacgcaa	ttagccggaa	gtgaagaagc	aagccgcttt	tatctggggt	ctcgaatgtt	1440
		ggttgaagaa				1500
cgttatcgtt	gtgtggatga	tgacggcaat	cttttaaccg	aacgcaagta	tcgggtttgc	1560
ctgccggatg	gtcagataaa	agaaggaaag	actgataaac	aaggttacac	ccaatggcat	1620
cttacggatg	acaaaaataa	acttgaattt	catattttaa	aggattaata	ccatgccagc	1680
ctataccgtt	cagacaaaaa	tagaatccaa	cgtacctgtt	gaaaacctgc	tttacgactt	1740

aaccatttat cgtaaggatg caaaaggaaa tttccatatc ttgcttgatg tttttcagga 1800 gaaactacag agtaattatg aaacacaaca gcatatcacg caggaaatag acgacgatct 1860 ttctgtgatt tatattatgc aaattatgct tcaccgcaaa catggctcaa atatatttcc 1920 ggcactgcaa acccatttta agaaaatgta taccctcggt gaattaactt ccggtaaagc 1980 ctgttcggag aaaaaacggg aaaatgcctg ttattttgaa agtacagttg aaacaaaacc 2040 tgtcagcgac ggggataata ccgttgactt aaatatcact attcctgaac gaccttttat 2100 tgccaaagaa tatcccattg gtcacccaca cgatccattt gaaaaaagta aaattgaatc 2160 ataaatacag gacaggttat cgaaaagaat ttatccggat caaaatggag caagtttatg 2220 tcagggcgcg agcacactat tttagctgcg tttttaagat gattatctct taatgttcag 2280 ttttaatagt gtttttatcg agtgaaattt aatcgcacag gcaattcttt agacttttat 2340 agaaaactaa agaattaaag aacaagattg acattttaag ttcaaatatt aatcaaagta 2400 tgctcgcgcc ctgagtttat gtggccctgc cgcttttttt tattgcctgc caatagatag 2460 2520 accagatatt tatgagcaag cggcacgaga attatggcaa tatggccgaa ctaaaattgg tcaactggaa attaagccgg gtgagggttg ccgacatcct aaaggtactt tttataatca 2580 atatggtgaa agaatatetg ggttagattg getgaeattg geaageetaa gagatteaga 2640 2700 aaatatgatg atgaggttga tgatgaagta gctggtatta caatgtgggg aaaattgaca gaatggtttg aaaaatcagg gtatgaaaaa gtatttagta atgtcggctt atcccattct 2760 aatataaatg acatagtaac tcttagtgat tactataaca aaggatatca tgttgttact 2820 ttgatttcag caggaatgtt atcagatttt ggtgacatag aaacatcagg aaaaaatcat 2880 tggatagttt gggaaggagt agtagaaaac tatgagaaag aaaatatcac aaataattca 2940 gatctgaatc aatatgtaaa tttaaatctg ttttcatggg gtaaagtgga acatcaaatt 3000 aaaaaaaaca aatcactaga ttatgtactc aaccatattt tttgagggtt ggtttttaaa 3060 ccaatgaaat aacatgaaaa aaatattaat tatttttatt tttttacttt atggttgtgg 3120 taatccaacg ccaaaagttt taccaaaatc agagtttctt cctgatgcag tgataaatga 3180 accatatcag gcatcaatta ccatcacagg aggtgcattg aatgaaaaaa gcgtttgggt 3240 aaaaattcat cctactggct caggactaac atggaatcca aaagatagtt ctttcctata 3300 gggtggaaaa aaagaaataa gaaaagatta tcatcatata aatataacag gtaccccaaa 3360 gaagacagaa ttgataaaaa ttgaagtggt aggatttaca ttgggtacaa tgtacgcacg 3420 gaaagagttc actataaatt atactataaa agtaagggaa taattgtcac tatcagaatg 3480 gtgatttaat tegecatttt tataettttg tataetetet caacataate aggattettt 3540 cttattattt ttcatggtgc taaaaacgtt tattgcaaaa ataaattaag ttaatcagat 3600 aaattatctg cattactgtt ataatcgata acacgataac ctgactttct gcctgttctt 3660 atgaactcga agataatcct ttctgagcct gaacgaatca cattgcaacc actcgctttg 3720 3780 aatcacccac accgggacat tcgtacgcga ggaacgggtt tactcatgct tgccagaggg agcaagccgt cccagatcac cgctgaaatc ggatgcagtc tccgggttat ctgtaattgg 3840 gttcacatgt ggcacagata gcgggattat tcggcggtca tgccggaggc cggtatctcg 3900 3960 ccatgacgcc tgacatgatt gccactgcgc tcgaagccgc cagcgcagag tccctgacgt gcgtcgaagc caggcagggt ttccctgcct tgtacgcttg aaacgctggc gaataccctg 4020 aaaaaacagg ggctccccta taaacgcccc cgcctgtcgc ttaaaaaaag cgcaataaaa 4080 4140 cggagtttgc tgaaaaatcc gccttgctga ataaaattaa ggccggagca cagtcaggac 4200 attaccgtct ggtctatttt gagttctggg ggcgttaaat tacacggata acacgctgtt ttaccagaca acgtcaggca gtatcacgcg agatgacgtg attgatttt tagagccggt ggccagacaa gggacaaccg cctgacattt ttagtgttgg ataatgcgcg tatccatcac 4260 4320 gggatagagg aaaaaatcag aaatggcggg tgacgagaac acaacctgtt tttattctat 4380 cttcccgctt acagcccaga gctgtatctg attgaaatcg tctggaaaca ggccaaatac 4440 gactggcgac gttttatcac ctggactcag gatacaatgg aatatgaggt aaatacttta 4500 4560 ttgaaaggtt atggcgacca atttgcaatt aacttttctt gagtacttag taagaataga gtcagtcgag gttttttcat ttcgggtcgt ggggatgata ctgaaaattt gtttgtaatc 4620 totgaaaatt gotgtttotg tggotacgto tgtottttgg gatattgttt ccatcaagto 4680 tgtcaacata ctgttaagtt agatgttgat aaaagagact gaattataat acaaaacaat 4740 4800 aaatcacttg gacaatattt tatttcacat gagacattaa ggttgatttt cccaatctgg tcagttataa ccgaataagg atcttgaaaa atcatgggat cttactttta tcaaatgaag 4860 ttaacgtaaa agttgataaa gaaaattatt taattctaag tgccgttggc ataaatattt 4920 4980 tgtgttttgt taatgaatga ataaccaggt aagetggatt ttcatttttt aattactegt tacaatatgc tatttattta tataaagagt ttgtgcccat ttaaccagta aacaaatttg 5040 ttcaaccgta acttagcttc atcgactttt ggcctcgcct ggtcagaatc tagggccgtt 5100 atcctattta tttatgataa ataaaattta attatcttta ataagctgaa tatgtggatt 5160 tgtgctcaat cttggattca agtatgtatt ccttttggta ccctgcttta ttttaaggca 5220 gatgaagagg atgccaacat gacacaatat cgattacgac tgtaacatta aagtcagtta 5280 taaattttat gattaaaatg aaattttagt agaaaatcgt attctattcc gccatttaca 5340 5400 atagcatcct ctttaatatc attaatctca gataaaacaa ataattacaa tgtgaataga ataatgactt acaaaataag cactaaatct tcagatgaac tcttaactga caacactatt 5460 ttataaaata attgaggtta ttatgtatag cacggctgta ttactcaata aaatcagtcc 5520

cactegegae ggteagaega tgaetettge ggatetgeaa tatttateet teagtgaaet 5580 gagaaaaatc tttgatgacc agctcagttg gggagaggct cgccatctct atcatgaaac 5640 tatagagcag aaaaaaata atcgcttgct ggaagcgcgt atttttaccc gtgccaaccc 5700 5760 acaattatcc ggtgctatcc gactcggtat tgaacgagac agcgtttcac gcagttatga 5820 tgaaatgttt ggtgcccgtt cttcttcctt tgtgaaaccg ggttcagtgg cttccatgtt ttcaccggct ggctatctca ccgaattgta tcgtgaagcg aaggacttac atttttcaag 5880 5940 ctctgcttat catcttgata atcgccgtcc ggatctggct gatctgactc tgagccagag taatatggat acagaaattt ccaccetgac actgtctaac gaactgttgc tggagctatt 6000 accegcaaga ceggaggtga tteggaegea ttgatggaga geetgteaac ttacegteag 6060 6120 gccattgata ccccttacca tcagccttac gagactatcc gtcaggtcat tatgacccat 6180 gacagtacac tgtcagcgct gtcccgtaat cctgaggtga tggggcaggc ggaagggct 6240 teattactgg egattetgge caatatttet ecagaactgt ataacatttt gacegaagag attacggaaa agaacgctga tgctttattt gcgcaaaact tcagtgaaaa tatcacgccc 6300 gaaaatttcg cgtcacaatc atggatagcc aagtattatg gtcttgaact ttctgaggtg 6360 caaaaatace tegggatgtt geagaatgge tattetgaca geacetetge ttatgtggat 6420 aatatctcaa cgggtttagt ggtcaataat gaaagtaaac tcgaagctta caaaataaca 6480 cgtgtaaaaa cagatgatta tgataaacat gtaaattact ttgatctgat gtatgaagga 6540 6600 aataatcaat totttatatg tgctaatttt aagatatcga gagaatttgg ggcgactott aggaaaaact cagggacaag tggcattgtc ggcagccttt ccggtcccct ggtagccaat 6660 actaatttca aaagcaatta cttaagtaac atatctgata atgaatacag aaatggcgta 6720 6780 aaaatatatg cctatcgcta tacgtcttcc accagcgcca caaatcaggg cggcggaata 6840 ttcacttttg agtcttatcc cctgactata tttgcgctca aactgaataa agccattcgc ttgtgcctga ctagcgggct ttcaccgaat gaactgcaaa ctatcgtacg cagtgacaat 6900 gcacaaggca tcatcaacga ctccgttctg accaaagttt tctatactct gttctacagt 6960 7020 caccgttatg cactgagctt tgatgatgca caggtactga acggatcggt cattaatcaa tatgcccgac gatgacagtg tcagtcattt taaccgtctc tttaataccc cgccgctgaa 7080 agggaaaatc tttgaagccg acggcaacac ggtcagcatt gatccggatg aagaacaatc 7140 7200 tacctttqcc cqttcaqccc tgatgcgtgg tctggggatc aacagtggtg aactgtatca gttaggcaaa ctggcgggtg tattggacac acaaaatatc ctcacacttt ctgtccctgt 7260 7320 tatatettea etgtategee teaegttaet ggeeegtgee eateagetga eggttaatga actgtgtatg ctttatggtt tttcgccgtt caatggcaaa acaacggctt ctttgtcttc 7380 7440 cggggagttg tcacggctgg ttatctggtt gtatcaggtg acgcagtggc tgactgaggg cggaaatcac cactgaagcg atctggttat tatgtacgcc agagttcagc gggaatattt 7500 7560 caccggaaat cagtaatctg cttaatactc tccgaccccg tattagtgaa gacatggcac 7620 aaagtagtga ccgggagctt caggctgaaa ttctcgcgcc gtttattgct gcaacgctgc atctggcgtc accagatatg gcgcggtata tcctgttgtg gactgataac ctgcggccgg 7680 gcggcctgaa tatcgccgga tttatgatgc tggtgctgaa agagacgctg agtgatgagg 7740 7800 aaacqaccca actggttcaa ttctgccatg taatggcaca gttatcgctt tccgtgcaga 7860 cactgcgtct cagtgaagca gagetttetg tgctggtcat ttccgatttt gtggtactgg gtgcgagaag ccaaccgccg gacaacacaa tattgatact ctgttctcac tctaccgatt 7920 ccaccagtgg attaatgggc tgggaaatcc cggctctgac acgctggata tgctgcgcca 7980 8040 agcagacact cacgggcgac agactgggcc tccgtgatgg ggctggacat cagtatggta acgcaggcca tgggttcccg ccggcgtgaa ccaacttcag tgttggcagg atatcaaccc 8100 cgtgttgcag tggatacatg tggcatcagc actgctcact gatgccgtcg gttatccgta 8160 cgctggtgaa tatccgttac gtgactgcat taaacaaagc cgagtcgaat ctgcctgcct 8220 8280 gggataagtg gcagacgctg gcagaaaata tggcagccgg actgagtaca caacaggctc 8340 agacgctggc ggattatacc gcagagcgcc tgagtaacgt gttgtgcaat tggtttctgg 8400 cgaatatcca gccagaaggg gtgtccctgc acagccggga tgacctgtac agctatttcc 8460 tgattgataa tcaggtctct tctgccataa aaaccacccg actggcagag gccattgccg gtattcagct ctacatcaac cgggcgctga accggataga gcctaatgcc cgtgccgatg 8520 8580 tgtcaacccg ccagtttttt accgactgga cggtgaataa ccgttacagc acctggggcg 8640 gggtgtcgcg gctggtttat tatccggaaa attacattga cccgacccag cgtatcgggc 8700 agacceggat gatggatgaa etgetggaag atateageea gagteagete ageegggaea 8760 cggtggaaga ggcctttaaa acttacctga ccgctttgaa accgtggcag acctgaaagt 8820 tqtcaqcqct atcaccgaca acgtcaacag caacaccgga ctgacctggt ttgtcggcca aacgcgggag aacctgccgg aatattactg gcgtaacgtg catatatcac ggatgcaggc gggtgaactg gccgccgatg cctggaaaga ttggacgaag attgatacag cggtcaaccc 8880 8940 atacaaggat gcaatacgtc cggtcatatt cagggaacgt ttgcacctta tcgtgggtag 9000 9060 aaaaagagga agtggcgaaa aatggtactg atccggtgga aacctatgac cgttttactc 9120 tgaaactggc gtttctgcgt catgatggca gttggagtgc cccctggtct tacgatatca 9180 caacgcaggt ggaggcggtc actgacaaaa aacctgacac tgaacggctg gcgctggccg 9240 catcaggett teagggegag gatactetge tggtgtttgt gtacaaaace ggggtgagtt acceggattt tggcgacaac aataaaaatg tggcaggcat gaccatttac ggcgatggct 9300

9360 ccttcaaaaa gatggagaac acagcactca gcgttacagc caactgaaaa atacctttga 9420 tatcattcat actcaaggca acgacttggt aagaaaggcc agctatcgtt tcgcgcagga ttttqaaqtq cctqcctcqt tqaatatggg ttctqccatc ggtgatgata gtctgacggt 9480 9540 gatggaaaac gggaatattc cgcagataac cagtaaatac tccagcgata accttgctat 9600 tacgctacat aacgccgctt tcactgtcag atatgatggc agtggcaatg tcatcagaaa caaacaaatc agcgccatga aactgacggg gttggatgaa agtcccagta cggcaatgca 9660 9720 tttatcatcg caaataccgt taaacattat ggcggttact ctgatctggg gggcccgatc accgttttta ttaaaacgga aaaactatat tgcatcagtt caaggccact tgatgaacgc 9780 9840 agattacact aggcgtttga ttctaacacc agttgaaaat aattattatg ccagattgtt 9900 cgagtttcca ttttctccaa acacaatttt aaacaccgtt ttcacggttg gtagcaataa 9960 aaccagtgat tttaaaaagt gcagttatgc tgttgatggt aataattctc agggcttcca gatatttagt tcctatcaat catccggctg gctggatatt gacacaggta ttaacaatac 10020 tgatgtcaaa attacggtgg tagctggcag taaaacccac acctttacgg ccagtgacca 10080 tattgcttcc ttgccggcaa acagttttga tgctatgccg tacaccttta agccactgga 10140 10200 aatcgatgct tcatcgttgg cctttaccaa taatattgct cctctggata tcgtttttga gaccaaagcc aaagacgggc gagtgctggg taagatcaag caaacattat cggtgaaacg 10260 ggtaaattat aatccggaag atattctgtt tctgcgtgaa actcattcgg gtgcccaata 10320 tatgcagctc ggggtgtatc gtattcgtct taataccctg ctggcttctc aactggtatc 10380 10440 cagagcaaac acgggcattg atactatcct gacaatggaa acccagcggt taccggaacc 10500 tccgttggga gaaggcttct ttgccaactt tgttctgcct aaatatgacc ctgctgaaca tggcgatgag cggtggttta aaatccatat cgggaatgtt ggcggtaaca cgggaaggca 10560 gccttattac agcggaatgt tatccgatac gtcggaaacc agtatgacac tgtttgtccc 10620 10680 ttatgccgaa gggtattaca tgcatgaagg tgtcagattg ggggttggat accagaaaat tacctatgac aacacttggg aatctgcttt cttttatttt gatgagacaa aacagcaatt 10740 tgtattaatt aacgatgctg atcatgattc aggaatgacg caacagggga tcgtgaaaaa 10800 10860 tatcaagaaa tacaaaggat ttttgaatgt ttctatcgca acgggctatt ccgccccgat ggatttcaat agtgccagcg ccctctatta ctgggaatgt tctattacac cccgatgatg 10920 10980 tgcttccagc gtttgctaca ggaaaaacaa ttcgacgaag ccacacaatg gataaactac 11040 qtctataatc ccgccggcta tatcgttaac ggagaaatcg cccctggat ctggaactgc 11100 eggeegetgg aagagacact cetggaatge caateegttg gatgecattg ateeggatge cgtcgcacaa tatgacccga cacactataa agttgccacc tttatgcgcc tgttggatca 11160 acttattctg cgcggcgata tggcctatcg cgaactgacc cgcgatgcgt tgaatgaagc 11220 11280 caagatgtgg tatgtgcgtg ctttggaatt gctgggtgat gagccggagg attacggcag 11340 ccaacagtgg gccgcaccgt ctctttccgt ggcgggcaac cacactgtgc aagcgggcta tcaacaagac cttacggcgc tagacaacgg agaaggttgc actcaacccc gcaacgctaa 11400 ctcgttggtg gtttggtcct gccggaatat aacccggaat caaccgatta ctggcaaacc 11460 11520 tgcgtttgcg cctggttaac ctgcgccata atccttccat gacgggcaac cgttatcgct ggcgaattac gcgagcctac gatccgaaag cgctgctcac cagtatggta cagccttctc 11580 agggcggtag tgcagtgctg cccggcacat tgtcgttata ccgcttcccg gtgatgctgg 11640 11700 agegggeeeg caatetggta gegeaattaa ceeagttegg cacetetetg etcagtatgg cagagcatga tgatgccgat gaactcacca cgttgctact acagcagggt atggaactgg 11760 cgacacagag catccgtatt cagcaacgaa ctgtcgatga agtggatgct gatattgctg 11820 11880 tattggcaga gagccgccgc agtgcacaaa atcgtctgga aaaataccag cagctgtatg 11940 acgaggatat caaccacgga gaacagcgtg cgatgtcact gtttgatgcg gcggcaggtc agtototggo cgggcaggog ototoagtag cagaaggggt ggotgactta gttocaaacg 12000 tgttcggttt cgcttgtggc ggcagtcgtt ggggggcagc actgcgtgct tccgcctccg 12060 12120 tgatgtcgct ttctgccaca gcttcccaat attccgcaga caaaatcagc cgttcggaag 12180 cctaccgccg ccgccgtcag gagtgggaaa ttcagcgtga taatgctgac ggtgaagtca aacaaatgga tgcccagctg gaaagcctga aaatacgcgg cgaagcagca cagatgcagg 12240 12300 tggaatatca ggagacccag caggcccata ctcaggctca gttagagctg ttacagcgta 12360 aattcacaaa caaagcgctt tacagttgga tgcgcggcaa gctgagtgct atctattacc 12420 agttetttga cetgacecag teettetgee tgatggeaca ggaagegetg egeegegage tgaccgacaa cggtgttacc tttatccggg gtggggcctg gaacggtacg actgcgggtt 12480 tgatggcggg tgaaacgttg ctgctgaatc tggcagaaat ggaaaaagtc tggctggagc 12540 12600 gtgatgagcg ggcactggaa gtgacccgta ccgtctcgtt ggcacagttc tatcaggcct tatcatcaga caactttaat ctgaccgaaa aactcacgca attcctgcgt gaagggaaag 12660 gcaacgtagg agcttccggc aatgaattaa aactcagtaa ccgccagata gaagcctcag 12720 12780 tgcgattgtc tgatttgaaa attttcagcg ataccccgga aagctttggc aatacccgtc agttgaaaca agtgagtgtc accttgccgg cgctggttgg tccgtatgaa gatatccggg 12840 cggtgctgaa ttacggcggc agcategtca tgccacgcgg ttgcagtgct attgctctct 12900 12960 cccacggcgt gaatgacagt ggtcaattta tgctggattt caacgattcc cgttatctgc 13020 cgtttgaagg tatttccgtg aatgacagcg gtagcctgac gttgagtttc ccggatgcga ctgatcgaca gaaagcgctg ctggagagcc tgagcgatat cattctgcat atccgctata 13080

ccattcgttc ttaattaaaa cattgtgata ggcaggctcc tgagggagcc tgtttaagga 13140 gtttttatgc agggttcaac acctttgaaa cttgaaatac cgtcattgcc ctctgggggc 13200 13260 ggatcactaa aaggaatggg agaagcactc aatgccgtcg gagcggaagg ggagcgtcat 13320 tttcactgcc cttgccgatc tctgtccggc gtggtctggt gccggtgcta tcactgaatt 13380 acagcagtac tgctggcaat gggtcattcg ggatggggtg gcaatgtggg gttggtttta 13440 tcagcctgcg taccgccaag ggcgttccgc actatacggg acaagatgag tatctcgggc 13500 cggatgggga agtgttgagt attgtgccgg acagccaagg gcaaccagag caacgcaccg caaceteact gttggggacg gttetgacae ageegeetae tgttaceege tateagteee 13560 gcgtggcaga aaaaatcgtt cgtttagaac actggcagcc acagcagaga cgtgaggaag 13620 13680 agacgtcttt ttgggtactt tttactgcgg atggtttagt gcacctattc ggtaagcatc 13740 atcatgcacg tattgctgac ccgcaggatg aaaccagaat tgcccgctgg ctgatggagg aaaccgtcac gcataccggg gaacatattt actatcacta tcgggcagaa gacgatcttg 13800 actgtgatga gcatgaactt gctcagcatt caggtgttac ggcccaccgt tatcctggca 13860 agtccactat ggcaatactc agccggaaac cgcttttttc gcggtaaaat caggtatccc 13920 13980 tgttgataat gactggttgt ttcatctggt atttgattac ggtgagcgct tatcttcgct gaactccgta cccgaattca atgtgtcaga aaacaatgtg tctgaaaaca atgtgtctga 14040 aaaatggcgt tgtcgtccgg acagtttctc ccgctatgaa tatgggtttg aaattcgaac 14100 14160 ccgtcgcttg tgtcgccaag ttctgatgtt tcatcagctg aaagcgctgg caggggaaaa 14220 ggttgcagaa gaaacaccgg cgctggtttc ccgtcttatt ctggattatg acctgaacaa 14280 caaggtttcc ttgctgcaaa cggcccgcag actggcccat gaaacggacg gtacgccagt gatgatgtcc ccgctggaaa tggattatca acgtgttaat catggcgtga atctgaactg 14340 gcagtccatg ccgcagttag aaaaaatgaa cacgttgcag ccataccaat tggttgattt 14400 atatggagaa ggaatttccg gcgttacttt atcaggatac tcagaaagcc tggtggtacc 14460 gtgctccggt acgggatatc actgccgaag gaacgaatgc ggttacctat gaggaggcga 14520 14580 aaccactgcc acatattccg gcacaacagg aaagcgcgat gttgttggac atcaatggtg 14640 acgggcgtct ggattgggtg attacggcat cagggttacg gggctaccac accatgtcac 14700 cggaaggtga atggacaccc tttattccat tatccgctgt gccaatggaa tatttccatc cgcaggcaaa actggctgat attgatgggg ctgggctgcc tgacttagcg cttatcgggc 14760 caaatagtgt acgtgtctgg tcaaataatc cggcaggatg ggatcgcgct caggatgtta ttcatttgtc aaataagcca ctgccggttc ccggcaaaaa taagcgtcat cttgtcgcat 14820 14880 teagtgatat gacaggetee gggeaateae atetggtgga agttacggea aatagegtge 14940 gctactggcc gaacctgggg catggaaaat ttggtgagcc tctgatgata acaggcttcc 15000 15060 aaattacggg gaaacgttta acccccacag actgtatatg gtagacctaa atggctcagg caccacccga ttttatttat gcccgcaata cttaccttga actctatgcc aatgaaagcg 15120 gcaatcattc tgctgaacct cagcgtattg atctgccgga tggggtacgt tttgatgata 15180 cttgtcggtt acaaatagcg gatacacaag gattagggac tgccagcatt attttgacga tcccccatat gaaggtgcag cactggcgat tggatatgac catattcaag ccttggctgc 15240 15300 tgaatgccgt caataacaat atgggaacag aaaccacgct gtattatcgc agctctgccc 15360 agttctggct ggatgagaaa ttacaggctt ctgaatccgg gatgacggtg gtcagctact 15420 15480 taccgttccc ggtgcatgtg ttgtggcgca cggaagtgct ggatgaaatt tccggtaacc gattgaccag ccattatcat tactcacatg gtgcctggga tggtctggaa cgggagtttc 15540 gtggttttgg gcgggtgacg caaactgata ttgattcacg ggcgagtgcg acacagggga 15600 cacatgetga accaceggea cettegegea eggttaattg gtaeggeact ggegtaeggg aagtegatat tettetgeee aeggaatatt ggeaggggga teaacaggea tttececatt 15660 15720 ttaccccacg ctttacccgt tatgacgaaa aatccggtgg tgatatgacg gtcacgccga 15780 gcgaacagga agaatactgg ttacatcgag ccttaaaagg acaacgttta cgcagtgagc 15840 15900 tgtatgggga tgatgattct atactggccg gtacgcctta ttcagtggat gaatcccgca 15960 cccaagtacg tttgttaccg gtgatggtat cggacgtgcc tgcggtactg gtttcggtgg 16020 ccgaatcccg ccaataccga tatgaagggg ttgttaccga ttccacagtg cagccaaaag 16080 attgtcctta aatatgatgc gttaggattt ccgcaggaca atcttgagat tgcctattcg agacgtccac agcctgagtt ctcgccttat ccggataccc tgcccgaaac acttttcacc 16140 agcagtttcg acgaacagca gatgttcctt cgtctgacac gccagcgttt ttcttatcac 16200 catctgaatc atgatgataa tacgtggatc acagggctta tggatacctc acgcagtgac 16260 16320 gcacgtattt atcaagccga taaagtgccg gacggtggat tttcccttga atggttttct 16380 gccacaggtg caggagcatt gttgttgcct gatgccgcag ccgattatct gggacatcag cgtgtagcat ataccggtcc agaagagcaa cccgctattc ctccgctggt ggcatacatt 16440 gaaaccgcag agtttgatga acgatcgttg gcggcttttg aggaggtgat ggatgagcag gagctgacaa aacagctgaa tgatgcgggc tggaatacgg caaaagtgcc gttcagtgaa 16500 16560 aagacagatt tocatgtotg ggtgggacaa aaggaattta cagaatatgo cggtgcagac 16620 ggattctatc ggccattggt gcaacgggaa accaagctta caggtcaaac gacagtgacg 16680 16740 tqqqataqcc attactgtqt tatcaccgca acagaggatg cggctggcct gcgtatgcaa 16800 gcgcattacg attatcgatt tatggttgcg gataacacca cagatatcaa tgataactat cacaccgtga cgtttgatgc actggggacg gtaaccagct tccgtttctg ggggactgaa 16860

aacggtgaaa aacaaggata tacccctgcg gaaaatgaaa ctgtcccctt tattgtcccc 16920 acaacggtgg atgatgctct ggcattgaaa cccggcatac ctgttgcagg gctgatggtt 16980 tatgcccctc tgagctggat ggttcaggcc agcttttcta atgatgggga gctttatgga 17040 17100 gagetgaaac eggetgggat catcactgaa gatggttate teetgteget tgettttege 17160 cgctggcatc aaaataaccc tgccgctgcc atgccaaagc aagtcaattc acagaaccca ccccatgtac tgagtgtgat caccgaccgc tatgatgccg atccggaaca acaattacgt 17220 17280 caaacgttta cgtttagtga tggttttggg cgaaacctta caaacagccg tacgccatga 17340 aagtggtgaa gcctgggtac ctgatgagta tggagccaat gtggctgaaa atcaaggcgc ccctgaaacg ggcgattaca aatttcccgt tgggcaattt cccggacgta cagaatatta 17400 17460 acgggaaaag gcaaagcccc tgcgttacgt ttcaaaccgt attcctgaaa taatttgggc 17520 aactatgtca agttgaccaa aaaatgcccg gcaggatatg tatgccgata cccattacta 17580 tgatccgttg gggcgtgaat atcaggttat cacgccaaag gcgggttgcg tcgatcctta ttcactccct ggtttgtggt gaatgaagtt gaaaatgaca ctcccggtga atgacagcat 17640 17700 aaagctcagt gatgcctgtt cactgaacag acatcactcc atttaggaat gaatcatgaa 17760 quatttcqtt cacaqcaata cgccatccgt caccqtactg gacaaccgtg gtcagacagt acgcgaaata gcctggtatc ggcaccccga tacacctcag gtaaccgatg aacgcatcac 17820 cggttatcaa tatgatgctc aaggatctct gactcagagt attgatccgc gattttatga 17880 acgccagcag acagcgagtg acaagaacgc cattacaccc aatcttattc tcttgtcatc 17940 18000 actcaqtaaq aaggcattgc gtacgcaaag tgtggatgcc ggaacccgtg tcgccctgca tgatgttgcc gggcgtcccg ttttagctgt cagcgccaat ggcgttagcc gaacgtttca 18060 gtatgaaagt gataaccttc cgggacgatt gctaacgatt accgagcagg taaaaggaga 18120 gaacgcctgt atcacggagc gattgatttg gtcaggaaat acgccggcag aaaaaggcaa 18180 18240 taatttggcc ggccagtgcg tggtccatta tgatcccacc ggaatgaatc aaaccaacag catattgtta accagcatac ccttgtccat cacacagcaa ttagtgaaag atgacagcga 18300 agccgattgg cacggtatgg atgaatttgg ctggaaaaac gcgctggcgc cggaaagctt 18360 18420 cacttctgtc agcacaacgg atgctaccgg cacggtatta acgagtacag atgctgccgg 18480 aaacaagcaa cgtatcgcct atgatgtggc cggtctgctt caaggcagtt ggttggcgct gaaggggaaa caagaacaag ttatcgtgaa atccctgacc tattcggctg ccagccagaa 18540 gctacgggag gaacatggta acgggatagt gactacatat acctatgaac ccgagacgca acgagttatt ggcataaaaa cagaacgtcc ttccggtcat gccgctgggg agaaaatttt 18600 18660 acaaaacctg cgttatgaat atgatcctgt cggaaatgtg ctgaaatcaa ctaatgatgc 18720 tgaaattacc cgcttttggc gcaaccagaa aattgtaccg gaaaatactt acacctatga 18780 cagcetgtac cagetggttt cegteactgg gegtgaaatg gegaatattg geegacaaaa 18840 18900 aaaccagtta cccatccccg ctctgattga taacaatact tatacgaatt actctcgcac 18960 ttacgactat gatcgtgggg gaatctgacc agaatcgcat aattcacgat caccggtaat 19020 aactatacaa cgaacatgac cgtttcagat cacagcaacc gggctgtact ggaagagctg gegcaagate ceaeteaggt ggatatgttg tteaeeeeeg gegggcatea gaeeeggett gtteeeggte aggatetttt etggacaeee egtgaegaat tgeaacaagt gatattggte 19080 19140 19200 aatagggaaa atacgacgcc tgatcaggaa ttctaccgtt atgatgcaga cagtcagcgt gtcattaaga ctcatattca gaagacaggt aacagtgagc aaatacagcg aacattatat 19260 19320 ttgccagagc tggaatggcg cacgacatat agcggcaata cattaaaaga gtttttgcag 19380 gtcatcactg tcggtgaagc gggtcaggca caagtgcggg tgctgcattg ggaaacaggc aaaccggcgg atatcagcaa tgatcagctg cgctacagtt atggcaacct gattggcagt 19440 19500 agegggetgg aattgggaca gtgaegggea gateattagt eaggaagaat attaeceeta tgggggaacc gccgtgtggg cacccgaaat cagtcagaag ctgattacac aagccggcgt 19560 tattctggca aagagcggga tgcaacaggg ttgtattact acggctatcg ttattatcaa 19620 tcgtggacag ggcgatggtt gagtgtagat cctgccggtg aggccgatgg tctcaatttg 19680 19740 ttccgaatgt gcaggaataa ccccatcgtt ttttctgatt ctgatggtcg tttccccggt 19800 cagggtgtcc ttgcctggat agggaaaaaa gcgtatcgaa aggcagtcaa catcacgaca 19860 gaacacctgc ttgaacaagg cgcttccttt gatacgttct tgaaattaaa ccgaggattg cgaacgtttg ttttgggtgt gggggtacaa gtctgggggt gaagcggcca cgattgcagg 19920 agegtegeet tgggggateg teggggetge cattggtggt tttgteteeg gggeggtgat 19980 ggggtttttc gcgaacaaca tctcagaaaa aattggggaa gttttaagtt atctgacgcg 20040 taaacgttct gctcctgttc aggtaggcgc ttttgttgtc acatcgcttg tgacgtctgc 20100 20160 actatttaac agetettega caggtacege cattteegea geaacagegg teacegttgg aggattaatg getttageeg gagaacataa caegggeatg getateagta ttgecaeace 20220 cgccggacaa agtacgctgg atacgctcag gcccggtaat gtcagcgcgc cagagcggtt 20280 20340 agggcactat caggcgcaat tattggcggc atattacttg gccgccatca gggaagttct gagctgggtg aacgggcagc gattggtgct atgtatggtg ctcgatgggg aaggatcatt ggtaatctat gggatggccc ttatcggttt atcggcaggt tactgctcag aagaggcatt 20400 20460 agctctgcca tttcccacgc tgtcagttcc aggagctggt ttggccgaat gataggagaa 20520 20580 agtgtcggga gaaatatttc tgaagtatta ttaccttata gccgtacacc cggtgaatgg gttggtgcag ccattggcgg gacagccgcg gccgctcatc atgccgttgg aggggaagtt 20640 gccaatgccg ctagccgggt tacctggagc ggctttaagc gggcttttaa taacttcttc 20700 tttaacgcct ctgcacgtca taatgaatcc gaagcataac aatcatgttc attcccactt 20760 tgtcatggat gacaaggtgg gtttttcgga tgtgtggaca gagacccgta cagggtctct 20820 gtccagttaa tttttggatc aagaacgaat ggtgtaacgg atatgcaaaa tgatatcgct 20880 caggctgagc aataagcttt tctgtttacc actgataccg ggaaaactga gggttaatgt 20940 gcctgtatcg gccacaggaa gcccttcaaa tggcaggtac ttagcatcat tgaaatccat 21000 ctggaattga ccactgtcat tcatgccatg tgagatcaca atcgctttgc agccacgtgg 21060 catcattgta ctgccgccat aactcagtat tgcccggaca tcctgataag gccctaaaag 21120 ggcaggtaac gtcacactga tttgtttgat acggcgtgta ttacctaaac cgtcaggata 21180 ateggtagea atatteagat eegataattt gaggetgget tgeagttgtg teeettegae 21240 gttcaaaccg ttaagcgttg tgcctgcact gccttcacct gcattgacta actcagtcac 21300 21360 tttatcttt aaaatgaaac tattttctgt cagaccagca tacacttcag ccagagaaac ggttctggtg acctccagtg cccgttcatc tttttccaaa tagctttttt ccatctgtgc 21420 taaattcagc atcagggttt cacccgctaa taaacccgca taagtcccat gccaagcacc 21480 tggtttaata aagtgtgctg ccgcattatt caattcatac tgataagttt gctctgccat 21540 21600 taaacagagt gagaccgcca aatcataaaa ctgataataa atagcggaca acgttccacg gagecagttg tatagegetg cattactgaa tttactttgc agaaaggeta actgegeetg 21660 agtttgtgcc tgctgagttt ccagatagtt tttttgtaat actgccgctt cacgacgtac 21720 21780 agccagcgtc gctaattgag catcaatttg ttttatctca gcttccgcat tattgcgctg aatttcccac tettgccgac ggcgacggta tatttctgat tggctgattt tgtctgcggc 21840 aatacgtgtt gctgacgcag aaatttcgat accaatcgca ctggcattga aaagcgcccc 21900 aaaacgggaa cctcccacag caaaaccgta aatattgggg acgagatctg ccgcggcggc 21960 22020 ggccatatgc agggctgtgc cgctggtgct caagaccgat gaagagaggt aaagatccat 22080 cgcttgtttt tcaccagcgt taacatcttc gtcgtacagc gtattgaaac tgtcaaaacg agactgtgca ccatgacggc tttcttgaag cgccaattta tcagcatcaa tttcagccat 22140 22200 gaccttatcc tgcattttaa tactttgcag ggctaactca ctgccttgag tttgcagtat ttcagccaag gcttctgcat cctgccgttc agtaatgctg agcagggtat tgccaaattg 22260 tatcaactgg cttaccccc acttggcatt ttccagaatc accggaaaac ggtacatcgg 22320 catcactgca tgaggtaaat cgccgccgcc ttgtgaagca gtgatggcag cactgagtaa 22380 catggacgga tetgegggeg tggcatagag agataatgac agtggctgac egtegattgt 22440 caggitatgg cgtaagttat agaggcgttg cgtcaatgtc tgccagtaac cttgcagttt 22500 22560 tttattaatt tgagggagga acaatgcggt taacgaaatt tgccgtacgt ttcgtgggta 22620 atgcagcgcg ctgacgcagt tgcagcattt tatgttgata atgatgccgc attgtttggc tggcagcttc ttccagccgt ggctctgacc aatcgttatc caatgaaaaa taaggctcat 22680 cacccaataa agtgagcgcc tgtacatacc acattttagc ttcgtttaag gtatcacgtt 22740 22800 caagetggeg ataggegeta teteegeggg taateaacaa atecageatt tteataaagg tagecacttt atagtgeate ggateatget gggeaaegge gteeggateg acegaateea 22860 geggattgge attecaggae gtatetteet ceaatgggeg gaegtteeag taataateet 22920 22980 gcatttcacc ctgaaccgaa tatccggtcg ggttcagata tagcgcagcc agcgtgtcga teeggtaaaa tetgetettg caataagege tggaatacea teatgggegt tgtaatagaa 23040 23100 caatcccaag aaatagattg cattggcgcc gtttgaaatc catgggttca gtgttatttt tcatgacacg acttgaatac cccttttata ttttttgata ttttttacta tcccctgttg 23160 tgtcattccc gaatcatgat cggcatcatt agtgaatata aattgatttt tcgtctcatc 23220 aaaataaaag aaagcagatt cccaggattt gtcatagata atttttttgt acccaacccc 23280 taatctgaca ccttcacgta tgtaatatcc tttagcatag ggaacaaaga gcgttactgt 23340 23400 ggtttcaata tcagataaca ttccttcgta ataaggttgt ctggcagaat tgccatcaat atteceaata tggatettaa accaaegtte ateaceatge teetettat tgtaggggg 23460 23520 caacttaaat gtcgcataaa accettcace taattgcggc tctggtaaat tttgcgtttc catacttaaa acattatcaa taccaatatt ggctctttca gctaattttc tggaaaataa 23580 agtatttaac cgggttctgt aagggccaat ctgcatatat tgtgtgcctg atggcatttt 23640 atgcagtgat ataacgttac ttgtatcttt ggattttagt tttatatgaa ttggcgattc 23700 aataacaata tcgttataac cgccgtcggg ttgcttaata ataaactcgc tcaccagagg 23760 aatatcatag ccttcaatat caacttttac ttgattaaaa tcatatacca tagggtcaga 23820 ttcgtgtgaa ggtttagatg ccacatggtc ttcagcattt aactccacta gaatatcaga 23880 gccatttttt aataaaaaac taatgttttt atcttggatc tgttcgatca tagatgaagc 23940 aagttttatt atctgtggct ggttgaacat aaatacaccc atggatcctc gcgaaggaac 24000 agtgccgcaa tatttcccat gttattaatg attgaaacat cattagtaaa tgattcacat 24060 atagtatgcc atactcctgt gttatctttc caatctaata ctatgttagt atcaagtttg 24120 aattcagcat catctgattc ataatcataa tttataccaa ctccaatttc tgattttcta 24180 24240 ggaatttttt ccttggttct tagatgcatt aacactctaa aatattcggc atttttaaga tcgatggaaa taataaaatc caaagttcca taatgaaaaa cttcttcttc ttttccaagc 24300 atttcatcat gtctatcata atcaaataaa ataaccgttt catcttctac catcgataac 24360 aggtatttaa cctcatcatt atatatattg ccttttgaaa aattaatttc cattgaagga 24420

ttgaacgtta aattaatatg accatttcct ggtgatatat acgagagatc aaaaatattt 24480 ccggtaaaac tggctaattt attttttgtg gttatagatt ccttatattc ggccaaataa 24540 tetgtageaa attgattgtt gaetttgtat tetgteetgg tateaagtte tgataatgtg 24600 24660 ctcttaacaa tggcgtctaa atcattttct gtgagaatgg ataatgtcat atcagggtta atggtcatcc cttctcttgc aggaagacta ttaaaagaat aattgtcttt tttctcatgg 24720 24780 aaataaacaa taatgacgtc tttttcataa tcagaagaac aatacatacc aatgctggct tttttattga tcaggttttc tattttatca gtcacattaa aattaaacgg tgagctccag 24840 ctgccatcat aacgaatatg tgacagtttt aatatataat cagtgatatc tatcttgcca 24900 tottcacttt catttttcaq ctotttttgt tocaqccaca gtaaatacaa acgagacttg 24960 25020 taaataacag gtctgatatt ttcctgccat acattgatgg gtatttcaat tttttccat tctccccagg cattggcagc aaattgaccg tgctggcact tttggtgatc gacattgcgc 25080 25140 caataatata ttctgggttc tgtctggcta taaccaatta aataagtgag cccctcattg acattaatac tgtcatgata tccgctaatc acctgcaagt tagcgacatc ttcaaatgcg 25200 gtcagataat ttttaaagct atcttcaacg gtatcgatat ttaactgact ttgggaaagt 25260 tgctgtaaca ggttgttcat catacctgtc tgaccaatac gaatcgtggg gtcgatatag 25320 ttttccggat aataggccag ttcagatacg ccggcccagg tgctataccg tcgattgtag 25380 gtttcccagt cgcagaagaa ctgacgggtt ttcactggct ttgatacttt tccttcaaca 25440 25500 ttattcaacg cccggttgac atataactga atgctggcaa tggcttctgc cacacgggtg gttttcactt gggcagaaac ttggttatca atcagcagat agctgtacaa ctcatcccgg 25560 ctcttaatct gttgaggtgc accatttttg atgtagtaag cactggccgc tgtcgtcgtg 25620 25680 getteateca gecatgeetg aagetggteg gattgttgae tgtteagtee egeetgeaae aaagtactgg cggcttgcca atcatcaaat gttggcatcg gggtttccgg ttcaccgaca 25740 tattttaatt ttatgagtgc agcaacacca tccggggtaa tacccaatgt agcagcgaca 25800 tccagccatt gcagagtgac atctataagt tctccagttg gtaaaggtat tcactcccaa 25860 25920 accggtctgt tgcaatgctt gtgtcacaac ctgagcatca aaattttaac gccaccgcca aattgttcgg cagtcaacgc tcctaagttc caaatgctgt taagattctg tcgcgtagct 25980 teacaacgca tgateacage atggaagegg gteagegett geaaagtggg gagateatgt tgeagtgetg tggtttetga ttggaattte teeggttttg teaceaacag ggteagtteg 26040 26100 ttttcgctga gtccaatatt gcgcacaatc agagaaagtt gccccagtac ctgacaaaaa 26160 gccaccatgt tgctggtttc attctctgag cgatcacggt tagccgcaat aatcatgaaa 26220 tcatcgaatg tcagtccttg tggttttatc tgattaatcc acagcaaaat agtttctgct 26280 26340 gttttggctg aatccatttg aatgctggca gcaatcagcg gggcagctgc acggatcagt 26400 tegteateae egagtgaaag tgttgataat ecattaetta gtgtegtgat aaggttttea atatccggcg taaggacagt gctgtaatta tccgtggtca tcagaaacac atcactgaca 26460 gaccatttct gtgttgtcag ccactgggtg cattggaaca gaaagctgat taattgcgtt 26520 aatgctgtat cagaaaaaag ggcaattttc gtgttcacat agggagaaac cgacaacaac 26580 atggataatt cattcactgt cagatgatga atgtctgcca gcagacgaac gcgataaagc 26640 26700 agagacaggt totogatgga acacataaat totggatttg ttoogcoatt agcoagttto 26760 cataatgtat acagttcagt atcattcact ctgaaagcac gtttcattat tcccaaataa aaatggtttt ttgattcacc gggggttaaa tccagtttgg tattatcagc agaaaactct 26820 tggccattta atagcggtgt attgaacagc attgtaaaat gactgggttg ttgtttagtg 26880 qaatattqqc tqatatctqa atgacacaat accagcgcat cgctgacgct aatattatag 26940 tgctgcatat aatattgaac ataaaacagc ttacccaaca cattgctgtc aatggttaag 27000 tcatcataaa tactttctat tacttgccag atatcttctg gagatatgcc tgtggcttta 27060 tacaaacqaa tcqctttatt caqctttaac aggaatatat caccgggaac tccatcattt 27120 27180 taaagtgtgc attggcattg atagcatccg acggatttgg ttaactcgcc ataagcggag tgttataccg ttggtgattt gctctgtcgt caatttaatg ggaatactgt aatgggtatt agcaatgggg acgaaatttt tatcttggta tatatattct ttatctccat tctggagacg 27240 27300 27360 aaaatccaag tggtcaggtt ctgttttttt tacactgaaa ttatatttgt attcattttc tttgattgga attagctctg catagtttaa atgtgaatcg tagaaatctt tgcgggttcg 27420 27480 cttaatcaat cttgccgttg ccgtatcatt cccgtcattg accaatgtta tcagttgctc 27540 attettatac tgttgatttg tatttttett accgaaggag agattgacaa ataaactgag 27600 ttcatcataa gacaaatcgt agtagcgagc caaagaagca taactcttaa aaatcagtac atcatctgta ccgaaatttt tcttcatcag ttctgttgaa ttttccggtg taatttcttc 27660 tacaaggatt tgatacaatt caggcgatat atcagtctta atagccagta gcgatgttgg 27720 gtccattaat tccgctacgt ctgtattacg gctaaatgcg gtgaggtttt tatcttgcaa 27780 27840 taaaattgcc tgacgggctg actcatacgg cagatgatag ggtgtcatgc cggtttgccg gtaagtggac aacattttca ttacaccgtt atagtcagtt ttctctaacg tctgaatatt 27900 atgcagcagt aattcattag ataaggataa tgtggaaatt tcttcatcca tattattctg 27960 28020 tgtcagtgcc agtgaagcaa tgtcggggcg tcgtttattc aggtgatatt gagaattgtc 28080 aggatgaaaa tetttegett eeegatataa ttetgttaaa taageegetg gtgaaaatat 28140 ggaagcaatt gatcccggtt ttacaaaacg gtgggcgcgg ccataaaacc aactgttgta actattgttt agggttgacg gtgtaatatt aaggttagtg atattagcca gttgtggatt 28200

agcacgggac aaaatgcgca gttcttcaag tttattctgt tttgattcct gatgagcctg 28260 ttgatataaa aagtetgttt etegeeaegt eagagtteea ettgteetat gaegaaatte 28320 gctgaaagac ataaacgaaa tgtttgtcaa taataaagta tcaccagcct ttttctattt 28380 atcttatcta acagttcatt aacttttatc atataaatcc ttaagttatt gtcaatttaa 28440 tgattaatgg tttttaggtg gagattatta taatctgata ggaatattat ggttaattaa 28500 28560 attgatactg atttatcgct ctattctttc aataaaaaat aaagaacttc cctataatac atggatttaa ataatgaata ccgtatgtta aaaattaaat tttaacaaac tttcatgaaa 28620 aaattcaact caacaattgt ttaaatattt ttaattgtgt ttgtgctgtt tgaaaaatga 28680 28740 atgactaata tttatctatg aaagattatt tattgaggat gtcttgcttg gtttcagggg gctacgttgg agtcagataa atgtgtgcaa aaagaaatcc ttaataaagt tgcgtaatta 28800 28860 caaaagttgg tatatcgtga caagagtgat agtaatgtca cataatttat tgaatacccg aacctcgcaa atgcggggtt tttcttcgca taatcaaaga gaaagctatg aaaaaaacac 28920 28980 tgattactct tattctcagt accetttctt ttggtgcttt ggcacagcag ggtggcttcg tttccccgga cagcacagac tatactcagg gtggatttaa aggtccaact cccaacctga 29040 ccagcgttgc tcaagcaaaa tcttttcgtg atgatgcgtg ggttgttctg gaaggaaaca 29100 29160 ttgttaaaca ggttggtcac gaactctatg aattcgcggc cgcataatac gactcactat agggateget tattacggae ttatceggaa agetatetgg aaccectgtt acgeetgaat 29220 aaaacagaat tcagggataa cagtggttct gtttatgttg acattgatga taagcgctgg 29280 atgggtetga eggeeactee aactgacaaa gttegtateg aaggtgaagt ggacaaagae 29340 tggaacagtg ttgaaattga tgtcaaaact atccgcatag tgaaataact caagcacttt 29400 gaatatagcc ccgcactcgc ggggtttttt gctttctggg agtcggaagt ttaaccgtag 29460 tgacgaggat caaaactaag ttaacggcag tggtcactga tttggtgcat aagttatcaa 29520 aagttaaaaa tcaaaactta ttttttattt aatagaggaa tgtcaccctg taggtgaata 29580 29640 acgttgacgg atgtaaatat acagtattat agtcctttga tatgttatta aattgaaaaa cctttaaact atattcgggg gaaattatta tgtcagatgt tcgtaatatt attaatgttg 29700 29760 ataacaattt tggttgtgaa tataaagcgg atttatttaa ataagttttc ataattgtga 29820 tacacccatt tttetcatcc ccggtttttg ctgttgtaag gaagcggttt ccatgaagat 29880 tttgacatgg ttaagcaact gccacataaa ttggcagcag tggtttcgtg tcacggtttc atgcaaggat tgccatagac gttcaatttt attcaaccac gggcaatagg tcggtaaaaa 29940 30000 gagaagatta aatttgggat tetttgecag ceaaaceetg acetteegge tettatgaat 30060 gcaatagtta totaaaatta acgtgatggt tttggcatta acatattgat tgttaatttc atctaacaat ttgataaata aatctgagtt ctttctcaag ctaccgacat aagtgatttc 30120 30180 tttcgttttc gcgttgaggc aattggcaag gtagtgtttt tggttctttc cgggggtaac 30240 aacacgettt tgttgeeett tgaageacca gtetgeaceg attttegggt teaggttgat gtccacctca tcctcataga agaccgggtg tttctcttga ggcattggat aacgtctcgc 30300 tgatttttgc cattttttca tcatactcag ggtcaggcaa ttttacggtt ggtgccgccc 30360 30420 ttcgccaaac gatgcccgtc cggcaaaagt agcgatagag ggtactttga gagagcgatg 30480 tattcagtag ctcattgatt ttaagtgtaa taagctcaag gctccatcgt gaacggagat 30540 agccaaaatg ttgtggcgag tgctgtaata agaaagaaat gactgtgaag agcggagcta 30600 agttccagat ggcaggcctt cccgccggga ggcttttaag tccttccaac ccgtataatg 30660 ttaaccaatt tacccaacga tgaacggaag aacgtgaaca gtgaagcgtt ctggaaacgt 30720 qaqaaaccqt actcccttca tgtaacatca agagcgcggt gaagcgacgt gcatagtcct 30780 tatecegggt tttetggata gettttttea teggaegteg tteatttegg ggtattgatg ttatgattgg catgactcag tccattttgg gatttgtttt gatttggcga ttaatcagat 30840 cgcgaaaatc ggactgagtt cccttcaagt gatctactat tttgaaatct tatttaatca 30900 30960 qqaqtcaqca aatqaqttat tccccataat acctgaccat gtggttgttt atccgggaaa 31020 tgattcatct accggtggta tgtggattcc ttggtgcgat agtcagaaag atattgactc 31080 tggccattat atcaaagtta ctttcagtaa aaaggacgct gctgatattg tgaactacat gtttcaacat ggcagttatg tttattttac agacagtagt aaacaattta gcaataagca 31140 aattatgtot ggtgattoag otaaaggoaa aggggattat aagottgaaa ttaaaacaaa 31200 cgggaacctt ccactgatgg tattgaataa atattgattc attattattt atggataaga 31260 aattaagttt atatttcatc tggtttctgc aattaagttt taaaaaattaa ttctactttt 31320 31380 tttatggttt tatatttaat gccaatcata ttatttttct tataataatt gatagtttat ttatatagta aataaattct gttggatgtg attattattg tgagacggta ataattaaca 31440 taacagaaaa ttcatggtta ggaaattcaa tcaacttttg tccggtttcc tgaccatgaa 31500 31560 gagetgtatt taetgtagaa etegeattga taetggattg attageegga egagtgttgg 31620 gtcagcagat aatatgttgt atattggctg tggatttttc agcgagatga tagctttggc agtaaaggcg attaataacc gataaaacag agagacggat tgtggccagg aaagcaaaaa 31680 agecteacea tgacgegtta tteaaacatt ttttaaceca accagaaace geeegggaat 31740 31800 ttttatccct ttatctgccg gaagcgatcc ggtcagtgtg tgatttacca cactaaaact 31860 ggaaccggca gctttgtgga caggcaatta cgtcagttgc acagtgatgt gctgtattct gtcgagacaa cccacgggga cggttacatt tattgcctga ttgaacacca gtccacgcct 31920 gatcogttaa tggcctggcg gctgatgtat tattcgctgt cagccatggc tgcgcatctg 31980

aaaaaaggac atactgaact ccctttggtc gtccccctgc tgttttatca tggtgaggtg 32040 aggeettace ettacteaaa tegatggetg gattgtttta caetetetga acaegegget 32100 cacctgtata atcagccct gccgttggtg gatatcagtg cgctcagtga tgaagagatc 32160 32220 ctgacacata aaagcattgc cttgatggag ctggtacaaa aacatatccg ttgccgggat atgctggagt gggttcccca attggtggcg ttgttgaatg ccggttataa tagcgccgaa 32280 cagegecatg ttgtgttaag ctatatttta ctgaatggac atacgetgga tetegeceag 32340 32400 tttqtccatc aactqactqa acaatctccg gagcatgaaa ccatgttgat gactattgca 32460 gaacagettg aacaaaaagg gegtgageaa ggeeggaeag aaggeagaac agaaggeaga 32520 gctgaaggac gggaagaagg caagctggaa acggcgcgcg cattattacg gcatggtgtc agtctggaca tcattgtcac cagtaccggc ctgagccggg agaaaattga agcgttaaag 32580 cattaaatgg atacgctttt tcacagcagg atatggtgac ccctgtgagg ccaccggaaa 32640 32700 attttattta ctacgattta cgacgggtta ctttaggaag ctgaatgaga cgtcctttgt tatataacgg teccatatea atettetett tteegegtae aggtaagtaa eecaaacett 32760 cgtgagcagc atttgccaac aggccatcat cctgatcgcc tgaccaagag aagatcccgc 32820 32880 ccaatttcat tttggttgca taaattccct tatgcagcac agtgcggggc gtatccagtg aaatccagtg accaccgtca gcattaaaga gtgcgtcagc gtcggtttcc gtgtctgtca 32940 ccagttcaaa ctgatttttc ccgcgtgcaa tttcatattc cgcatcgtat tggttattca 33000 33060 gcagacagaa gaatteegga gcaeettttt ecategtgee cagtggetet eetgttetgt tatagoggog ogttgtcaga toagcaccca gacatgaacg tocatagtta gcaaatcoga 33120 ggtgaatttt ctccggttgt acaccttgtg acagtaaaaa gcggatcgcc tcatctgccg 33180 agtaatccat gtcccgatca ggattgggcg gaggagggtt atcgccgtca tattcatatc 33240 33300 tggggggata caggttagta tggtgaccga tgtattctgc ccaaccggta ccaaagaagt 33360 cgtaggtcat cacaaagata ttgtctaaat aaggtgcgat ttctttgaag ctggacttct ccattttggc aacgacggcg ctacaggcta tcgtgatttc tttacgggcc cgggttccaa 33420 33480 aggogatgtt cagtgcttca cgcagctctt tcactaacaa aacatagttt gggccatcat gttccgggtc gaattcatta ccttcttcac ctgtggcgcc ggggtattcc cagtcgatat 33540 ccaccgcagt aaacatggga aaacgccggg aagaagtcga cgatgctact cacaaatgta 33600 gcacgttgct caggatcttt ggccatcaca gagaaatacc ctgacatact ccagccgccg 33660 atactgaatg cgagttccag cttatgccct gcctgttttg ctcgcgcttt cagattacgc 33720 aatcccccca gtaaaccgga ggctgcatcc tgattgtaat attgcaagaa attcttcggg 33780 ctggcatcac ggcgctgatc cgcgtccaga ccgacattgc gtgtggtgcc taaatcacca 33840 33900 taaggatcaa cgggtacaat atggcctaat gtaatagggg caatctggcc actgctggct tetgettgee ggtteeacce gteaacaace teattaatce gtteggataa ettgeetttg 33960 tcaccgttga cggccataaa actgaaaatc aggcggtcgt aggcggtagg cgggattttt 34020 34080 tccagatcaa aaccacggcc gggggcatcg tcgctggtca gcgcagtgtt atcctgggtt tetggegaca aaegegeate ataetggeae cagteagtaa tataggeaga gaetttagge 34140 ageggttetg tatttteegg ateaacttea tattegttgt acagggaett ggcaacaegt 34200 gctgaagaat aactcaaagg agttccgctg ccgtcaggtt tatatcccac cttctgatag 34260 34320 gtttcttctg tgagtgcatc atattgcaat acctcggttt tttctcccgg cggtacatca ggcgtattgg ggttaccgtg atcggcaatt tettecggtg tegeeteaeg gacatattge 34380 caggcattct cataaaccgg taaatcaggt gaaatattgc ggtcgggaat atgccagcgt 34440 34500 tcaacccage cgatgttttt aaaaaccgeg ctatcataaa tgacatacca ggtttgacca ccagattgat tctgccaggc aaccagagat gcgcctactt cgctgctggc gtcagacatc 34560 gctttaattg aagggtatcg ataaacattt tgagacataa tttcacttcc ggccccgtta 34620 34680 tattccgggg ccggctcctg atatcagtta gaattgtctt gttttaattg atgtttattc agacggctac gaacctgctg gctgaactca ttacttccgc cactcacatc acgcgcggta 34740 34800 taacgcagat ggaggataat atcgctcagc gactccagca gctgatcctg atcggaaccg aattccaact tccactgtga aatggcgcct gtcccttcaa aaggcaggaa aagttcatca 34860 34920 tcaaaattga gcctgaacat gccgctgtct tccatggccg ttgaaatcac cacaccttga 34980 ttagcctgta cgttcagcaa aacgttttcg ggtttggtgt attccaaggg gttaagcaaa taatcgatag tttttaagtc agcagtactg taaagcgtat tgctgagttg taccagtgaa 35040 35100 gecegtacat etteataagg eeccageaat gegggeaatg acagegetae ggtttttata 35160 cgccgatcag cgtgggtcgg ataatcgcgc aagaacattt cggcgctcag taagaaagtg aatgaacccg tactcttgcc aatttcccac tgtgatgatg tcagtaatga ttttaccgat 35220 35280 atggttttta tgatctccag acgtctggtg ttatgttgca aatacgcctg atccatccgt 35340 tgtaaggcta atttcagatg ttctccgacc agcagcccct gataaagatc attccagaga ccactttgga cgaaattcat atcatactga cctgtttcgt actgccagga ggcttcggcc 35400 agtaaacaga gggaattaac cgcatcatag gcttgcaggt aaagccggag atttggctga 35460 tcatccacat gtataacgca tcattggtan anttgttcnn nnnnnnnnn nnnnnnnnc 35520 ccgaagcata ccgccaagac catccccccg acggccagac cgaaaatatt gggaaccata 35580 tecgecacag eggeegeagt ggeggetgae tgggeagega teacacette ageegetett 35640 35700 gattqtaatq cgataacttc ctgctcggtg atggagatgt tttcatcata gagcgattta 35760 tagtgttgct ggcgctcctg agcggcccgt cggctgatgg tcagtgcatc caatgaagcc

35820 tgttgcatgt caatcgcttg ctgttgcaga ttgcgggtaa agctgtacag ccccagttgc tqctqcatac qqaaqtqttc aaaatcggta ttgtcttttt tctccagcaa actcagtaac 35880 35940 gtgctgccgt actgaatcag cgtttctgcg gcctcttttg cccggctcat gatcggggtg aaacgataat tegggattge eeggegtite atgeeegeea taegattage cacaacaege 36000 tggtaacgct gcctgagcag atcttgcggg ctgatgggtt catcgtataa tccggccgga 36060 36120 aactetttae catecaaggt caggttatga egtaagttat atagaegetg atecaacatt 36180 tgccacagtt tgagatattc cgtatcaaca ggtttgacaa ataaatcaga cggtgcggca gagacggatg tatcatatgt cacaggcaga agtggcacgt tgctgacagt aagcattaac 36240 tectgtgeee gtgetteact gtttteatae agageeacat ettgeagegt aeggggttge 36300 36360 cagtttgccg cgagcagaat atcagggctg gtacccagta acatattgac ggagtcatag atctgcttgg cgacagtacg tgcactggat gtcagcttac ggtattccat gtctccctga 36420 tctaacagat tcttgacata gaaacggaat attgctttcc ggtagtgaat gggttcactg 36480 36540 gctgcaatgg catccggatc ggttggttca attaacatcc ggtacacggt gggtggagga 36600 tcaataattg gccgtgaatt ccagtaacgc ggtttacctt ggttgctggc ctgaacaagt 36660 tcatcttcca gcggattaaa aatatagtgc agccattcgg tggcctcttt taatcgttgt tctatattca gtcgccacgc gaccagaaat ggcatatgga aaaacagttc ccagaaatag 36720 atcccatttg cgccatttaa atcaatcggc gtagggaatg aaccgggtat aggctgttcg gtaataagct gtgtattcca gctcagtacc tgcgggatac cctgactggc aatggcgatc 36780 36840 36900 agtttttttg caaacagtgt attaaggcga atgttttgtg gcgcgttatc agtttcatct 36960 gcggggaagg aaaggaattg cacctgatcc tgttcattga gtttaatcag ttcgcgaata 37020 tgcataccga ttctgaactc ttgagtacag ctggcacttt cattgccaac accacctttg ggettaaaga gaagttegge ttteagggtg attegattat eegaceecag ettgattgat 37080 ggataggtta aatcaagaac tttttcgctc agtaccagtg gttgttcatc caagacagta 37140 ttatcgtgca tcagccggaa agaaccgttg taatattgat gatcttctat cgcaccaaac 37200 ttaaagtcag attgagcgac aatctccagt gtgtcatcag tgccatgaac aaaattgaca 37260 atcagtttga tactgtcttt gccgaaatca gggttcattc cggtttggat tctccggcaa 37320 37380 taggaaagcg ttcttcccgg gttgccggat agagcaccat agtacggtaa tcgataggat tgccttaagg catccttgtg ttcacgtgag taataccaga ccaggttgcc gacatatttt 37440 37500 ccttttcgtc catcagcata ttggtcatcc ggcaaatcag taatttctac cagcagtgta tegeagaeat aacegaagge ttegteataa teataateet taeetttett atetgteece 37560 37620 tgaagacgga caaacggaac cagagccaga aacgggttat gcgggtcttg ctgtatatcc atcacagcaa ccatctgggc catccggtat tgcagatgtc ttcgcgcaga atggtgggtg 37680 37740 tactccaget gecateatat ttggcataag egattttgat eeggteagga aeggtgtggg 37800 aggaacccaa tcacccgcac taggctcaac gttttggtta tgcagtgata acgcagttgt 37860 atctttagtt tcagactgtt cttcaacttc cgtccaggca atatacaggc gattattcag 37920 gaaaatgggg cgtatcaaat tggggtctac gctgcccaat ggcaggtcaa taggtttcca 37980 ctcgctccag gcattgggag ataacgcatc ggtatcagga tggcgtatcg aaagattcag tgaacgccag taatattggt atggctgtgt acgggtacgt ccgacaaaga agaacttatc 38040 gcgtttgatg ttaacaccat cttcataacc tgcgataact ttcaggttac tgacatcttc 38100 aaaattattc agataaccga gcaccgcttg ttgtacagaa tcttcggtaa tttttccctg 38160 38220 attaagggca etttecagtt ggaagaagaa ttetgtttta tteaggegta acaggggtte 38258 cagatagett teeggataag teegtaataa gegateee